

FILE 'CAPLUS, MEDLINE, BIOSIS' ENTERED AT 09:11:00 ON 11 MAR 2004

L1	12079 S (GYCYL (W) GLYCINE) OR (GLY (W) GLY) OR CARNOSINE OR ANSERINE
L2	192 S L1 AND (RADIATION OR IRRADIAT?)
L3	49 S L2 AND GAMMA
L4	1556 S GLASS (W) TRANSITION (W) POINT
L5	70 S L4 AND (RADIATION OR IRRADIAT?)
L6	0 S L5 AND TISSUE
L7	0 S L5 AND BIOLOGICAL
L8	22 S L2 AND TISSUE
L9	18 S L8 NOT L3

L3 ANSWER 40 OF 49 MEDLINE on STN  
TI Ergothioneine, histidine, and two naturally occurring histidine dipeptides as radioprotectors against gamma-irradiation inactivation of bacteriophages T4 and P22.  
AB Bacteriophages P22, T4+, and T4os (osmotic shock-resistant mutant with altered capsids) were diluted in 0.85% NaCl and exposed to **gamma irradiation** (2.79 Gy/min) at room temperature (24 degrees C). T4+ was more sensitive to inactivation than was P22, and the T4os mutant was even more sensitive than T4+. Catalase exhibited a strong protective effect and superoxide dismutase a weaker protection, indicating that H2O2 or some product derived therefrom was predominant in causing inactivation of plaque formation. Low but significant (0.1-0.3 mM) reduced glutathione (GSH) enhanced phage inactivation, but a higher (1 mM) GSH concentration protected. A similar effect was found for the polyamine, spermidine. In contrast, 0.1 mM L-ergothioneine (2-thiol-L-histidine betaine) exhibited strong protection and 1 mM afforded essentially complete protection. L-Ergothioneine is present in millimolar concentrations in some fungi and is conserved up to millimolar concentrations in critical tissues when consumed by man. L-Histidine and two histidine-containing dipeptides, **carnosine** and **anserine**, protected at a concentration of 1 mM, a level at which they are present in striated muscles of various animals.

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